

North Dakota Immunization Information System (NDIIS)

HL7 Transfer Specification Version 2.5.1

Version 1.4

November 20, 2014

Introduction

The North Dakota Immunization Information System (NDIIS) has been enhanced to provide HL7 real-time bidirectional messaging service. Providers who already store and process immunization data in their own electronic information systems will be able to submit and receive client and immunization data via HL7 messaging, eliminating the need to enter data into both NDIIS and the provider's system. HL7 real-time data exchange system requirements for providers include the following.

- Ability to create and consume HL7 version 2.5.1 messages in accordance with the NDIIS HL7 Real-time Data Exchange specification, and complete the associated certification process.
- Ability to transport messages securely using an approved protocol (e.g., SOAP/HTTPS).
- Ability to correct messages with errors and resend the corrected messages.

Scope of this Document

NDIIS supports a specific subset of HL7 messages pertaining to client and vaccination information. Specifications within this document define how these messages should be constructed.

Real-time Processing

1. Providers must be able to transmit messages to and receive messages from the NDIIS messaging system. Providers are responsible for obtaining or developing client software for sending and receiving messages.
2. Provider connectivity to the test and production environments will be coordinated during the NDIIS On-boarding process.
3. The NDIIS Technical Staff will work with providers to test message transport and formatting using the NDIIS test environment.

References

NDIIS supports the Centers for Disease Control's (CDC) and American Immunization Registry Association (AIRA) goal of HL7 uniformity.

The HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.4, 08/01/2012, is available at <http://www.ndhealth.gov/Immunize/Documents/Interop/hl7guide-1-4.pdf>

Information for the HL7 standard can be found at <http://www.hl7.org>

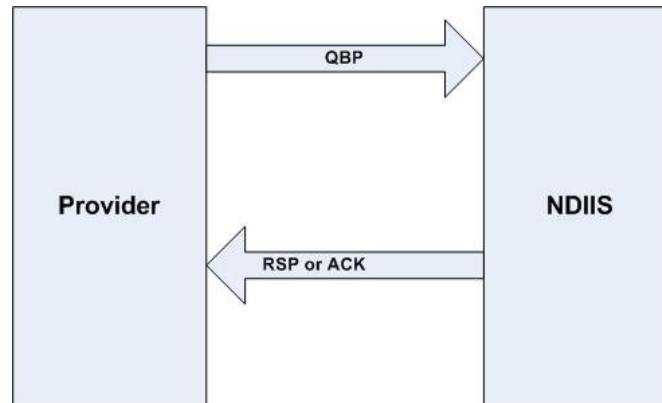
Real-time HL7 Messages

The allowed HL7 messages are listed below.

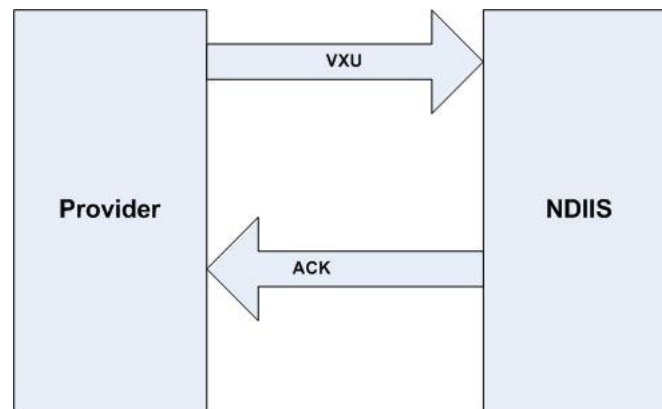
- QBP Query by Parameter.
- RSP Respond to QBP message.
- VXU Unsolicited Vaccination Record Update.
- ACK General Acknowledgment, Indicates NDIIS Received the Message but there was an Error.

The data exchanges are illustrated below.

QBP



VXU



Message Structure

Note: HL7 optional segments are indicated by square brackets, [], and repeatable segments are indicated by curly braces, { }. NDIIS required segment names are bolded.

• *QBP/RSP Messaging.*

Message Type: **QBP^Q11**

Message Name: Query for Vaccination Record

<u>Segment</u>	<u>Segment Name</u>
MSH	Message Header Segment
QPD	Query Parameter Definition
RCP	Response Control Parameter

QBP Example (all examples in this document relate to fictitious patients).

```
MSH|^~\&|PROVIDERX|04999||ND0000|201006091100||QBP^Q11^QBP_Q11|4766546|T|2.5.1|||||Z34^CDCPHINVS<CR>
QPD|Z34^Request Immunization History^HL70471|979696988|3766276^^NDIIS^SR|DOE^JANE^R|DOE^SALLY|19981912|F|2341 West Main
St^^Fargo^ND^^L<CR>
RCP|||5^RD^HL70126|R^real-time^HL70394<CR>
```

Message Type: **RSP^K11**

Message Name: Respond to QBP message (Single client match, with forecast data).

<u>Segment</u>	<u>Segment Name</u>
MSH	Message Header Segment
MSA	Message Acknowledgement Segment
[ERR]	Error
QAK	Query Acknowledgement
QPD	Query Parameter Definition
{	
{	
PID	Patient Identification Segment
[PID1]	Additional Demographics
[{NK1}]	Next of Kin/Associated Parties
}	
[
[PV1]	
[IN1]	
{	
ORC	Order Request
RXA	Pharmacy Administration
[RXR]	Pharmacy/Treatment Route
{	
OBX	Observation/Result
[{NTE}]	Notes
}]	
}]	
]	
}	

RSP *Example 1, one client match found.*

MSH||NDIIS|ND0000|PROVIDERX|04999|201006091102||RSP^K11^RSP_K11|7731029|t|2.5.1|||||||Z32^CDCPHINVS<CR>
MSA|AA|4766546<CR>
QAK|979696988|OK|Z343^request Immunization history^HL70471<CR>
QPD|Z34^Request Immunization History^HL70471|979696988|3766276^^NDIIS^SR|DOE^JANE^R|DOE^SALLY|19981912|F|2341 West Main
St^Fargo^ND^^L<CR>
PID|1||37262522^^NDIIS^SR||DOE^JANE|SMITH^JOAN^R|19980629|F|||242 MAIN BLVD^^MINOT^ND^58455^^^<CR>
PD1|||||||N|20100409<CR>
NK1|1|DOE^JOAN^R|MTH^MOTHER^HL70063<CR>
RXA|0|1|20100607112343|20100607112343|20^DTAP^CVX|999|||^^04999|||WR50599|20110203|MED^Medimmune, Inc.^MVX<CR>
RXR|SC^HL70162<CR>
OBX|1|TS|30956-7^vaccine type^LN|1|49^HIB (PRP-OMP)^CVX|||||F<CR>
OBX|1|CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||F|||20100609<CR>
OBX|1|DT|30980-7^Date vaccination due^LN|1|20100809|||||F|||20100609<CR>
OBX|1|DT|59777-3^Latest date to give vaccine^LN|1|20110809|||||F|||20100609<CR>

RSP *Example 2, multiple matches found.*

MSH|^~\&|NDIIS|00001|||201108240254||RSP^K11^RSP_K11|201108240254|T|2.5.1|||||||Z32^CDCPHHINVS<CR>
MSA|AA|4766339<CR>
QAK|972227778|AA|<CR>
QPD|Z34^Request Immunization History^HL70471|972227778|0000813314^^NDIIS^SR|NET^DUP^||20110101|F|222 2nd Ave S^Fargo^ND^^L<CR>
PID|0|0000813437^^NDIIS^SR|NET^DUP^R^^|20110101|M|||1344 5TH AVE W^FARGO^ND^58104^^^|||||||<CR>
NK1||Net^Jane|MTH^Mother^HL70063<CR>
PID|0|0000813438^^NDIIS^SR|NET^DUP^C^^|20110101|M|||9989 55TH AVE N^GRAND FORKS^ND^58201^^^|||||||<CR>
NK1||Net^Lori|MTH^Mother^HL70063<CR>

RSP *Example 3, no match found.*

MSH|^~\&|NDIIS|00001|||201108240324||RSP^K11^RSP_K11|201108240324|T|2.5.1|||||||Z32^CDCPHHINVS<CR>
MSA|NF|4766388<CR>
QAK|971227778|NF|Z34^Request Immunization History^HL70471<CR>
QPD|Z34^Request Immunization History^HL70471|971227778|0076813314^^NDIIS^SR|XLSEREN^XUANNA^<CR>

- ***VXU/ACK Messaging.***

Message Type: **VXU^V04**

Message Name: Unsolicited Vaccination Update

<u>Segment</u>	<u>Segment Name</u>
MSH	Message Header Segment
PID	Patient Identification Segment
[PID1]	Additional Demographics
[{NK1}]	Next of Kin/Associated Parties
[PV1]	Patient Visit
[{RXA	Pharmacy Administration
[RXR]	Pharmacy Route
[{OBX	Observation Result
[{NTE}]	Notes regarding Immunization
}]	
}]	

VXU Examples.

VXU Example 1. Financial class V01 Not Eligible, and Private Funding Source.

```
MSH|^~\&|SENDAPP|SENDERFAC|RECAPP|RECFAC|201410271116||VXU^V04^VXU_V04|269999999|P|2.5.1|||NE|AL|||<CR>
PID|1|500000009|^^^PI||DOE^KIM^J||20131001|M||^UNKNOWN^HL70005|1234 111TH ST^FARGO^ND^58103^USA^M|(701)001-
0001^PRN^^^701^0010002||S||||^UNKNOWN^HL70189|||||<CR>
PD1|||||||01^No reminder/recall^HL70215|||||20141027<CR>
NK1|1|DOE^MARY^|PAR^HL70063|1234 111TH ST^FARGO^ND^58103|(701)001-0002^PRN^^^701^0010002|||||||19900825|||||||<CR>
ORC|RE|69989898|00998877|||||^SMITH^CHUCK||9999999444^JONES^LILY^NDA^L|||||||<CR>
RXA|0|1|201410271116|201410271116|161^Influenza, injectable,quadrivalent, preservative free, pediatric^CVX|.25|mL^mL^ISO+||00^NEW
IMMUNIZATION RECORD^NIP001|^SMITH^CHUCK^^|Nodak Clinic, PC^1344 12TH AVE
E,FARGO,ND^58103|||U5018AA|201506300000|PMC^sanofi pasteur^MVX|^A|<CR>
RXR|IM^HL70162|LT^HL70163||<CR>
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V01^Not VFC Eligible^HL70064|||||F||20140714||VXC40^Eligibility captured at
the immunization level^CDCPHINVS|||||<CR>
OBX|2|CE|30963-3^Vaccine purchased with^LN|PHC70^Private Funds^HL70396|||||F||20140714||||||<CR>
OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|20141027|||||F||20141027||||||<CR>
OBX|4|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|20140819|||||F||20141027||||||<CR>
```

VXU Example 2. Financial Class V02 Medicaid, and State Funding Source.

MSH|^~\&|SENDAPP|SENFAC|RECAPP|RECFAC|201410271116||VXU^V04^VXU_V04|26999999|P|2.5.1||NE|AL||||<CR>
PID|1|50000009|^^^PI||DOE^KIM^J||20131001|M||^UNKNOWN^HL70005|1234 111TH ST^FARGO^ND^58103^USA^M|(701)001-
0001^PRN^^^701^0010002||S||||^UNKNOWN^HL70189||||||<CR>
PD1|||||||01^No reminder/recall^HL70215||||||20141027<CR>
NK1|1|DOE^MARY^|PAR^HL70063|1234 111TH ST^FARGO^ND^58103|(701)001-0002^PRN^^^701^0010002|||||||19900825|||||||<CR>
ORC|RE|69989898|00998877|||||^SMITH^CHUCK||9999999444^JONES^LILY^^^^NDA^L|||||||<CR>
RXA|0|1|201410271116|201410271116|161^Influenza, injectable, quadrivalent, preservative free, pediatric^CVX|.25|mL^mL^ISO+||00^NEW
IMMUNIZATION RECORD^NIP001|^SMITH^CHUCK^^|Nodak Clinic, PC^1344 12TH AVE
E,FARGO,ND^58103||||U5018AA|201506300000|PMC^sanofi pasteur^MVX|^||A|<CR>
RXR|IM^HL70162|LT^HL70163||<CR>
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible - Medicaid/Medicaid Managed
Care^HL70064||||F|||20141027||VXC40^Eligibility captured at the immunization level^CDCPHINVS||||||<CR>
OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC2^State Funds^HL70396||||F|||20141027|||||||<CR>
OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN||20141027||||F|||20141027|||||||<CR>
OBX|4|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN||20140819||||F|||20141027|||||||<CR>

VXU Example 3. Multiple vaccinations in VXU message.

MSH|^~\&|SENDAPP|SENFAC|RECAPP|RECFAC|201410271116||VXU^V04^VXU_V04|26999999|P|2.5.1||NE|AL||||<CR>
PID|1|50000009|^^^PI||DOE^KIM^J||20131001|M||^UNKNOWN^HL70005|1234 111TH ST^FARGO^ND^58103^USA^M|(701)001-
0001^PRN^^^701^0010002||S||||^UNKNOWN^HL70189||||||<CR>
PD1|||||||01^No reminder/recall^HL70215||||||20141027<CR>
NK1|1|DOE^MARY^|PAR^HL70063|1234 111TH ST^FARGO^ND^58103|(701)001-0002^PRN^^^701^0010002|||||||19900825|||||||<CR>
ORC|RE|69989898|00998877|||||^SMITH^CHUCK||9999999444^JONES^LILY^^^^NDA^L|||||||<CR>
RXA|0|1|201410271116|201410271116|161^Influenza, injectable, quadrivalent, preservative free, pediatric^CVX|.25|mL^mL^ISO+||00^NEW
IMMUNIZATION RECORD^NIP001|^SMITH^CHUCK^^|Nodak Clinic, PC^1344 12TH AVE
E,FARGO,ND^58103||||U5018AA|201506300000|PMC^sanofi pasteur^MVX|^||A|<CR>
RXR|IM^HL70162|LT^HL70163||<CR>
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible - Medicaid/Medicaid Managed
Care^HL70064||||F|||20141027||VXC40^Eligibility captured at the immunization level^CDCPHINVS||||||<CR>
OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC2^State Funds^HL70396||||F|||20141027|||||||<CR>
OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN||20141027||||F|||20141027|||||||<CR>
OBX|4|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN||20140819||||F|||20141027|||||||<CR>
ORC|RE|69989898|00998877|||||^SMITH^CHUCK||9999999444^JONES^LILY^^^^NDA^L|||||||<CR>
RXA|0|1|201410271116|201410271116|83^Hep A, ped/adol, 2 dose^CVX|.25|mL^mL^ISO+||00^NEW IMMUNIZATION
RECORD^NIP001|^SMITH^CHUCK^^|Nodak Clinic, PC^1344 12TH AVE
E,FARGO,ND^58103||||K8254|20151120000|SKB^GlaxoSmithKline^MV|||A|<CR>
RXR|IM^HL70162|LT^HL70163||<CR>

OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible - Medicaid/Medicaid Managed Care^HL70064|||||F|||20141027|||VXC40^Eligibility captured at the immunization level^CDCPHINVS|||||<CR>
 OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC2^State Funds^HL70396|||||F|||20141027|||||<CR>
 OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN||20141027|||||F|||20141027|||||<CR>
 OBX|4|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN||20140819|||||F|||20141027|||||<CR>

VXU Example 4. Historical vaccination.

MSH|^~\&|SENDAPP|SEDFAC|RECAPP|RECFAC|201410271116||VXU^V04^VXU_V04|26999999|P|2.5.1|||NE|AL||||<CR>
 PID|1|50000009|^^^PI||DOE^KIM^J||20131001|M||^UNKNOWN^HL70005|1234 111TH ST^FARGO^ND^58103^USA^M|(701)001-0001^PRN^^^701^0010002||S|||||^UNKNOWN^HL70189|||||<CR>
 PD1|||||||01^No reminder/recall^HL70215|||||20141027<CR>
 NK1|1|DOE^MARY^|PAR^HL70063|1234 111TH ST^FARGO^ND^58103|(701)001-0002^PRN^^^701^0010002|||||||19900825|||||||<CR>
 ORC|RE|69989898|00998877|||||^SMITH^CHUCK||9999999444^JONES^LILY^^^^NDA^L|||||||<CR>
 RXA|0|1|201410271116|201410271116|100^PNEUMOCOCCAL CONJUGATE^CVX|999|999|01^Historical^NIP001||Nodak Clinic, PC^1344 12TH AVE E,FARGO,ND^58103|||||CP|A<CR>

Message Type: **ACK**

Message Name: General Acknowledgement

<u>Segment</u>	<u>Segment Name</u>
MSH	Message Header
MSA	Message Acknowledgement
[ERR]	Error

ACK Example message with no error.

MSH|^~\&|NDIIS|ND0000||04999|201006091006||ACK^|0000000004|T|2.5.1<CR>
 MSA|AA|0000000004|<CR>

ACK Example message with error:

MSH|^~\&|NDIIS|ND0000||04999|201006091643||ACK^|0000000005|T|2.5.1<CR>
 MSA|AE|0000000005|<CR>
 ERR|PID^22|103^Required Field Missing^HL70357|<CR>

VFC vaccine accountability. All ND providers receiving VFC vaccine must send the patient VFC eligibility and the vaccine funding source.

Two OBX segments are utilized to transmit the information as shown in the following examples.

Not VFC eligible, Privately funded vaccine.

OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V01^Not VFC Eligible^HL70064|||||F|||20140714|||VXC40^Eligibility captured at the immunization level^CDCPHINVS|||||||<CR>

OBX|2|CE|30963-3^Vaccine purchased with^LN||PHC70^Private Funds^HL70396|||||F|||20140714|||||||<CR>

VFC eligible, Publically funded vaccine.

OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible - Medicaid/Medicaid Managed Care^HL70064|||||F|||20141027|||VXC40^Eligibility captured at the immunization level^CDCPHINVS|||||||<CR>

OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC2^State Funds^HL70396|||||F|||20141027|||||||<CR>

Vaccine Borrow-Return (ND only). Administering a vaccination from a private lot for a VFC eligible patient, or administering a vaccination from a VFC lot for a VFC ineligible patient will trigger a Borrow event.

Segment Descriptions

Segment Structure

The tables below define the structure of the HL7 segments. The table column definitions are:

SEQ	Sequence of the elements (fields) as they are numbered in the segment
LEN	Recommended maximum length of the element. Lengths are provided only for primitive data types.
Data Type	HL7 Data type.
Cardinality	Indicator of the minimum and maximum number of times the element may appear.

[0..0] Element never present.
 [0..1] Element may be omitted and can have at most, one occurrence.
 [1..1] Element must have exactly one occurrence.
 [0..n] Element may be omitted or may repeat up to n times.
 [1..n] Element must appear at least once, and may repeat up to n times.
 [0..*] Element may be omitted or repeat for an unlimited number of times.
 [1..*] Element must appear at least once, and may repeat unlimited number of times.
 [m..n] Element must appear at least m and, at most, n times.

Value Set	See CDC/AIRA Implementation Guide for Immunization Messaging, Release 1.0, 05/01/201, Appendix A, which contains the tables of value sets referenced by these data types.
Item #	Unique item identifier in HL7
Element Name	HL7 descriptor of the element in the segment.
Usage	Indicates whether the field is supported. Indicates if the field, component, or subcomponent is required, optional, or conditional in the corresponding segment, field, or component. See Usage Code Interpretation, above. Note: A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is populated, then the required component must be populated. The same applies to required sub-components of optional components. If a component is populated, the required sub-components of that component must also be populated.
Comment	Lists any constraints imposed and other comments.

Delimiter Characters

Delimiter values are specified in MSH-2. NDIIS uses the recommended delimiter set.

<CR> Segment Terminator (carriage return)
| Field Separator
^ Component Separator
& Sub-component Separator
~ Repetition Separator
\ Escape Character

MSA—Message Acknowledgement Segment

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1	2..2	ID	[1..1]	0008	Acknowledgment Code	Required	
2	1..199	ST	[1..1]		Message Control ID	Required	
3		ST	[0..1]		Text Message	Optional	
4		NM	[0..1]		Expected Sequence Number	Optional	
5			[0..1]		Delayed Acknowledgment Type	Optional	
6		CE	[0..0]	0357	Error Condition	Not Used	

MSA field definitions

MSA-1 Acknowledgment Code (ID) 00018

Definition: This field contains an acknowledgment code, see message processing rules. Refer to HL7 Table 0008 - Acknowledgment code for valid values.

MSA-2 Message Control ID (ST) 00010

Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This field echoes the message control id sent in MSH-10 by the initiating system.

MSH—Message Header Segment

SEQ	LEN	Data Type	Cardinality	Value set	ELEMENT NAME	Usage	Constraint
1	1..1	ST	[1..1]		Field Separator	Required	The MSH.1 field shall be
2	4..4	ST	[1..1]		Encoding Characters	Required	The MSH.2 field shall be ^~\&
3		HD	[0..1]	0361	Sending Application	Required	Provided by NDIIS Technical Staff
4		HD	[0..1]	0362	Sending Facility	Required	Provided by NDIIS Technical Staff
5		HD	[0..1]	0361	Receiving Application	Required	Provided by NDIIS Technical Staff
6		HD	[0..1]	0362	Receiving Facility	Required	Provided by NDIIS Technical Staff
7		TS	[1..1]		Date/Time Of Message	Required	The degree of precision must be at least to the minute, and the time zone must be included (format YYYYMMDDHHMM[SS[.S[S[S[S]]]]+/-ZZZZ).
8		ST			Security	Optional	Provided by NDIIS Technical Staff if used.
9		MSG	[1..1]		Message Type	Required	
10	1..199	ST	[1..1]		Message Control ID	Required	
11		PT	[1..1]		Processing ID	Required	
12		VID	[1..1]		Version ID	Required	2.5.1

13		NM	[0..1]		Sequence Number	Optional	
14		ST	[0..1]		Continuation Pointer	Optional	
15		ID	[0..1]	0155	Accept Acknowledgement Type	Required, may be empty	
16	2	ID	[0..1]	0155	Application Acknowledgment Type	Required, may be empty	AL-always, NE-Never, ER-Error/reject only, Successful completion only
17	3	ID		0399	Country Code	Optional	Use 3 character country code from ISO 3166. If is empty, assume USA
18	16	ID			Character Set	Optional	
19		CE			Principal Language Of Message	Optional	
20	20	ID			Alternate Character Set Handling Scheme	Optional	
21		EI	[0..*]		Message Profile Identifier	Optional	This field will be required for use whenever a Profile is being used.

MSH field definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is |, (ASCII 124).

Example: MSH|



MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

MSH-3 Sending Application (HD) 00003

Definition: The value for this field will be provided by the NDIIS Technical Staff.

MSH-4 Sending Facility (HD) 00004

Definition: The value for this field will be provided by the NDIIS Technical Staff.

MSH-5 Receiving Application (HD) 00005

Definition: The value for this field will be provided by the NDIIS Technical Staff.

MSH-6 Receiving Facility (HD) 00006

Definition: The value for this field will be provided by the NDIIS Technical Staff.

MSH-7 Date/Time Of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision must be at least to the minute. The time zone must be specified and will be used throughout the message as the default time zone.

MSH-8 Security (ST) 00008

Definition: The value for this field will be provided by the NDIIS Technical Staff.

MSH-9 Message Type (MSG) 00009

Definition: This field contains the message type, trigger event, and the message structure ID for the message. Refer to HL7 Table 0076 - Message type for valid values for the message type code. This table contains values such as ACK, ADT, VXU, ORU etc. The following table lists those anticipated to be used by IIS.

Message Types

Transaction	Message type
Unsolicited update of immunization record	VXU
Unsolicited update of demographic data	ADT
Query to another system	QBP
Response to query	RSP

MSH-10 Message Control ID (ST) 00010

Definition: This field contains the identifier assigned by the sending application (MSH.3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility (MSH.4), sending application (MSH.3), and the YYYYMMDD portion of message date (MSH.7). The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). The content and format of the data sent in this field is the responsibility of the sender. The receiver returns exactly what was sent in response messages.

MSH-11 Processing ID (PT) 00011

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. Reference Table HL7 0103 in Appendix A. The choices are Production and Debugging.

MSH-12 Version ID (VID) 00012

Definition: This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. Only the first component need be populated.

MSH-15 Accept Acknowledgment Type (ID) 00015

Definition: This field identifies the conditions under which accept acknowledgments are required to be returned in response to this message. Required for enhanced acknowledgment mode. Refer to HL7 Table 0155 - Accept/application acknowledgment conditions for valid values.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field contains the conditions under which application acknowledgments are required to be returned in response to this message.

MSH-17 Country Code (ID) 00017

Definition: This field contains the country of origin for the message. The values to be used are those of ISO 3166,.17. The ISO 3166 table has three separate forms of the country code: HL7 specifies that the 3-character (alphabetic) form be used for the country code. If this field is not valued, then assume that the code is USA.

Refer to HL7 Table 0399 – Country code for the 3-character codes as defined by ISO 3166-1.

MSH-21 Message Profile Identifier (EI) 01598

Definition: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. This field will be required whenever a profile is being used to constrain the message.

NK1—Next of Kin Segment

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Utilizing NK1-1 - set ID, multiple NK1 segments can be sent to patient accounts. That is, each subsequent NK1 increments the previous set ID by 1. So if 3 NK1 were sent in one message, the first would have a set id of 1, the second would have 2 and the third would have 3.

SEQ	LEN	Data Type	Cardinality	Value set	ELEMENT NAME	Usage	Constraint
1	4	SI	[1..1]		Set ID - NK1	Required	
2		XPN	[1..*]		Name	Required	The first instance is the legal name and is required.

3		CE	[1..1]	0063	Relationship	Required	
4		XAD	[0..*]		Address	Required, may be empty	The first instance shall be the primary address.
5		XTN	[0..*]		Phone Number	Required, may be empty	The first instance shall be the primary phone number.
6		XTN			Business Phone Number	Optional	
7		CE		0131	Contact Role	Optional	
8	8	DT			Start Date	Optional	
9	8	DT			End Date	Optional	
10	60	ST			Next of Kin / Associated Parties Job Title	Optional	
11		JCC		0327/ 0328	Next of Kin / Associated Parties Job Code/Class	Optional	
12		CX			Next of Kin / Associated Parties Employee Number	Optional	
13		XON			Organization Name - NK1	Optional	
14		CE		0002	Marital Status	Optional	
15	1	IS		0001	Administrative Sex	Optional	
16		TS			Date/Time of Birth	Optional	
17	2	IS		0223	Living Dependency	Optional	
18	2	IS		0009	Ambulatory Status	Optional	
19		CE		0171	Citizenship	Optional	
20		CE		0296	Primary Language	Optional	
21	2	IS		0220	Living Arrangement	Optional	
22		CE		0215	Publicity Code	Optional	
23	1	ID		0136	Protection Indicator	Optional	

24	2	IS		0231	Student Indicator	Optional	
25		CE		0006	Religion	Optional	
26		XPN			Mother's Maiden Name	Optional	
27		CE		0212	Nationality	Optional	
28		CE		0189	Ethnic Group	Optional	
29		CE		0222	Contact Reason	Optional	
30		XPN			Contact Person's Name	Optional	
31		XTN			Contact Person's Telephone Number	Optional	
32		XAD			Contact Person's Address	Optional	
33		CX			Next of Kin/Associated Party's Identifiers	Optional	
34	2	IS		0311	Job Status	Optional	
35		CE		0005	Race	Optional	
36	2	IS		0295	Handicap	Optional	
37	16	ST			Contact Person Social Security Number	Optional	
38		ST			Next of Kin Birth Place	Optional	
39	2	IS		0099	VIP Indicator	Optional	

NK1 field definitions

NK1-1 Set ID - NK1 (SI) 00190

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

NK1-2 Name (XPN) 00191

Definition: This field contains the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. Refer to HL7 Table 0200 - Name Type for valid values.

NK1-3 Relationship (CE) 00192

Definition: This field contains the actual personal relationship that the next of kin/associated party has to the patient. Refer to User-defined Table 0063 - Relationship for suggested values.

NK1-4 Address (XAD) 00193

Definition: This field contains the address of the next of kin/associated party. Multiple addresses are allowed for the same person. The mailing address must be sent in the first sequence. If the mailing address is not sent, then the repeat delimiter must be sent in the first sequence.

NK1-5 Phone Number (XTN) 00194

Definition: This field contains the telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. The primary telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

NK1-6 Business Phone Number (XTN) 00195

Definition: This field contains the business telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. The primary business telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

NK1-15 Administrative Sex (IS) 00111

Definition: This is the sex of the next of kin.

NK1-16 Date/Time of Birth (TS) 00110

Definition: This is the date of birth of the next of kin.

NTE—Note Segment

The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP. It is also used in ADT in relation to various segments.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1		SI			Set ID - NTE	Optional	
2		ID		0105	Source of Comment	Optional	
3		FT	[1..1]		Comment	Required	
4		CE		0364	Comment Type	Optional	

NTE field definitions

NTE-3 Comment (FT) 00098

Definition: This field contains the comment contained in the segment.

OBX—Observation Result Segment

The observation result segment has many uses. It carries observations about the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization record. The basic format is a question (OBX-3) and an answer (OBX-5).

SEQ	LEN	Data Type	Cardinality	Value Sets	ELEMENT NAME	Usage	Comment
1	4	SI	[1..1]		Set ID – OBX	Required	
2	2	ID	[1..1]	0125	Value Type	Required	CE, NM, ST, DT, or TS
3		CE	[1..1]		Observation Identifier	Required	This indicates what this observation refers to. It poses the question that is answered by OBX-5.
4	20	ST	[1..1]		Observation Sub-ID	Required, may be empty	
5		Varies 20	[1..1]		Observation Value	Required	This is the observation value and answers the question posed by OBX-3
6		CE	[0..1]		Units	Conditional, May be empty	If the observation in OBX-5 requires an indication of the units, they are placed here.
7	60	ST			References Range	Optional	
8	5	IS		0078	Abnormal Flags	Optional	
9	5	NM			Probability	Optional	

10	2	ID		0080	Nature of Abnormal Test	Optional	
11	1	ID	[1..1]	0085	Observation Result Status	Required	Constrain to F
12		TS			Effective Date of Reference Range Values	Optional	
13	20	ST			User Defined Access Checks	Optional	
14		TS	[0..1]		Date/Time of the Observation	Required	
15		CE			Producer's Reference	Optional	
16		XCN			Responsible Observer	Optional	
17		CE	[0..1]		Observation Method	Optional	
18		EI			Equipment Instance Identifier	Optional	
19		TS			Date/Time of the Analysis	Optional	
20					Reserved for harmonization with V2.6	Optional	
21					Reserved for harmonization with V2.6	Optional	
22					Reserved for harmonization with V2.6	Optional	
23		XON			Performing Organization Name	Optional	
24		XAD			Performing Organization Address	Optional	
25		XCN			Performing Organization Medical Director	Optional	

OBX field definitions

OBX-1 Set ID - OBX (SI) 00569

Definition: This field contains the sequence number. The first instance shall be set to 1 and each subsequent instance shall be the next number in sequence.

OBX-2 Value Type (ID) 00570

Definition: This field contains the format of the observation value in OBX. If the value is CE then the result must be a coded entry.

OBX-3 Observation Identifier (CE) 00571

Definition: This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Example: |30963-3^Vaccine purchased with^LN|.

OBX-4 Observation Sub-ID (ST) 00572

Definition: This field is used to group related observations by setting the value to the same number.

OBX-5 Observation Value (varies) 00573

Definition: This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.

OBX-6 Units (CE) 00574

Definition: This shall be the units for the value in OBX-5. The value shall be from the ISO+ list of units.

OBX-11 Observation Result Status (ID) 00579

Definition: This field contains the observation result status. The expected value is F or final.

OBX-14 Date/Time of the Observation (TS) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation.

OBX-17 Observation Method (CE)

Definition: This optional field can be used to transmit the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID.

ORC—Order Request Segment

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1	2	ID	[1..1]	0119	Order Control	Required	use RE
2		EI	[0..1]		Placer Order Number	Required, may be empty	See Guidance below.
3		EI	[1..1]		Filler Order Number	Required, may be empty	See Guidance below.
4		EI			Placer Group Number	Optional	
5	2	ID		0038	Order Status	Optional	
6	1	ID		0121	Response Flag	Optional	
7		TQ			Quantity/Timing	Not Used	
8		EIP			Parent	Optional	
9		TS			Date/Time of Transaction	Optional	
10		XCN	[0..1]		Entered By	Required, may be empty	This is the person that entered this immunization record into the system.
11		XCN			Verified By	Optional	
12		XCN	[0..1]		Ordering Provider	Required, may be empty	This shall be the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from a historical record.
13		PL			Enterer's Location	Optional	

14		XTN			Call Back Phone Number	Optional	
15		TS			Order Effective Date/Time	Optional	
16		CE			Order Control Code	Optional	
		CE			Entering Organization	Optional	
18		CE			Entering Device	Optional	
19		XCN			Action By	Optional	
20		CD		0339	Advance Beneficiary Notice Code	Optional	
21		XON			Ordering Facility Name	Optional	
22		XAD			Ordering Facility Address	Optional	
23		XTN			Ordering Facility Phone Number	Optional	
24		XAD			Ordering Provider Address	Optional	
25		CWE			Order Status Modifier	Optional	
26		CWE		0552	Advanced Beneficiary Notice Override Reason	Optional	
27		TS			Filer's Expected Availability Date/Time	Optional	
28		CWE		0177	Confidentiality Code	Optional	
29		CWE		0482	Order Type	Optional	
30		CNE		0483	Enterer Authorization Mode	Optional	
31		CWE			Parent Universal Service Identifier	Optional	

ORC field definitions

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment. The value for VXU and RSP shall be RE.

ORC-2 Placer Order Number (EI) 00216

The placer order number is used to uniquely identify this order among all orders sent by a provider organization.

ORC-3 Filler Order Number (EI) 00217

The filler order number is used to uniquely identify this order among all orders sent by a provider organization that filled the order.

ORC-10 Entered By (XCN) 00224

Definition: This identifies the individual that entered this particular order. It may be used in conjunction with an RXA to indicate who recorded a particular immunization.

ORC-12 Ordering Provider (XCN) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field should not be populated.

ORC-17 Entering Organization (CE) 00231

Definition: This field identifies the organization that the enterer belonged to at the time he/she enters/maintains the order, such as medical group or department. The person who entered the request is defined in ORC-10 -entered by.

ORC-21 Ordering Facility Name (XON) 01311

Definition: This field contains the name of the facility placing the order. It is the organization sub-unit that ordered the immunization. (i.e. the clinic)

ORC-22 Ordering Facility Address (XAD) 01312

Definition: This field contains the address of the facility requesting the order.

ORC-23 Ordering Facility Phone Number (XTN) 01312

Definition: This field contains the phone number of the facility requesting the order.

ORC-24 Ordering Provider Address (XAD) 01314

Definition: This field contains the address of the care provider requesting the order.

ORC-28 Confidentiality Code (CWE) 00615

This field allows a system to indicate if special privacy rules apply to the RXA that is associated with this ORC. For instance, if a state had special rules about who may see records for HPV vaccinations, then this field could convey that. The value to use in this case is R for restricted.

PD1—Patient Demographic Segment

The Patient Demographic Segment contains patient demographic information that may change from time to time. There are three primary uses for in Immunization Messages. These include indicating whether the person wants his/her data protected, whether the person wants to receive recall/reminder notices and the person's current status in the registry.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1	2	IS		0223	Living Dependency	Optional	
2	2	IS		0220	Living Arrangement	Optional	
3	250	XON			Patient Primary Facility	Optional	
4	250	XCN			Patient Primary Care Provider Name & ID No.	Optional	
5	2	IS		0231	Student Indicator	Optional	
6	2	IS		0295	Handicap	Optional	
7	2	IS		0315	Living Will Code	Optional	
8	2	IS		0316	Organ Donor Code	Optional	
9	1	ID		0136	Separate Bill	Optional	
10	250	CX			Duplicate Patient	Optional	
11	250	CE	[0..1]	0215	Publicity Code	Required, may be optional	
12	1	ID	[0..1]	0136	Protection Indicator	Required, may be optional	
13	8	DT	[0..1]		Protection Indicator Effective Date	Conditional	If protection indicator I valued then this field should be valued.
14	250	XON	[0..1]		Place of Worship	Optional	
15	250	CE	[0..1]	0435	Advance Directive Code	Optional	

16	8	IS	[0..1]	0441	Immunization Registry Status	Required, may be optional	
17	8	DT	[0..1]		Immunization Registry Status Effective Date	Conditional	If the registry status field is filled then this should be valued.
18	8	DT	[0..1]		Publicity Code Effective Date	Conditional	If the publicity code field is filled then this field should be valued.

PD1 field definitions

PD1-3 Patient Primary Facility (XON) 00756

Definition: This field contains the name and identifier that specifies the —primary care|| healthcare facility selected by the patient.

PD1-4 Patient Primary Care Provider Name & ID No. (XCN) 00757

Definition: Identifier for primary care provider.

PD1-11 Publicity Code (CE) 00743

Definition: This field contains a user-defined code indicating what level of publicity is allowed (e.g., No Publicity, Family Only) for the patient. In the context of immunization messages, this refers to how a person wishes to be contacted in a reminder or recall situation. Refer to User-defined Table 0215 - Publicity Code for NDIIS values.

PD1-12 Protection Indicator (ID) 00744

Definition: This field identifies whether a person's information may be shared with others. The protection state must be actively determined by the clinician. If it is not actively determined, then the protection indicator shall be empty.

There are 3 states:

Protection State	Code
Yes, protect the data. Client (or guardian) has indicated that the information shall be protected. (Do not share data)	Y
No, it is not necessary to protect data from other clinicians. Client (or guardian) has indicated that the information does not need to be protected. (Sharing is OK)	N

No determination has been made regarding client's (or guardian's) wishes regarding information sharing	PD1-12 is empty.
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PD1-13 Protection Indicator Effective Date (DT) 01566

Definition: This field indicates the effective date for PD1-12 - Protection Indicator.

PD1-16 Immunization Registry Status (IS) 01569

Definition: This field identifies the current status of the patient in relation to the sending provider organization.. Refer to User-defined Table 0441 - Immunization Registry Status for suggested values.

PD1-17 Immunization Registry Status Effective Date (DT) 01570

Definition: This field indicates the effective date for the registry status reported in PD1-16 - Immunization Registry Status.

PD1-18 Publicity Code Effective Date (DT) 01571

Definition: This is the effective date for PD1-11 - Publicity Code.

PID—Patient Identifier Segment

The PID is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	Data Type	Cardinality	Value Set	Element Name	Usage	Constraint
1	4	SI	[0..1]		Set ID - PID	Required, may be empty	
2		CX	[0..1]		Patient ID	Not used	
3		CX	[1..*]		Patient Identifier List	Required	
4		CX			Alternate Patient ID - 00106	Not used	
5		XPN	[1..*]		Patient Name	Required	the first repetition shall contain the legal name. Multiple given names or initials are separated by spaces.
6		XPN	[0..1]		Mother's Maiden	Required,	

					Name	may be empty	
7		TS	[1..1]		Date/Time of Birth	Required	Required, must have month, day and year.
8	1	IS	[0..1]	0001	Administrative Sex	Required	M= male, F = female, U = not determined/unspecified/unknown.
9		XPN			Patient Alias	Not Used	This field should not be used. It was supported in earlier implementations.
10		CE	[0..*]	0005	Race	Required	The first triplet is to be used for the alpha code. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) should be used for governmentally assigned numeric codes (####-#).
11		XAD	[0..*]		Patient Address	Required	The first repetition should be the primary address.
12	4	IS	[0..1]	0289	County Code		County belongs in address field.
13		XTN	[0..*]		Phone Number - Home	Required, may be empty	The first instance shall be the primary phone number. Only one item is allowed per repetition.
14		XTN	[0..1]		Phone Number - Business	Optional	
15		CE	[0..1]	0296	Primary Language	Optional	Use ISO 639.
16		CE	[0..1]	0002	Marital Status	Optional	
17		CE	[0..1]	0006	Religion	Optional	
18		CX	[0..1]		Patient Account Number	Optional	
19	16	ST	[0..1]		SSN Number - Patient	Not Used	
20		DLN	[0..1]		Driver's License Number - Patient	Not Used	

21		CX	[0..1]		Mother's Identifier	Not Used	
22		CE	[0..1]	0189	Ethnic Group	Required	First triplet shall contain H,N,U if populated. Second triplet shall contain government issued code from table xxx, if populated. If both are populated, they must match logically.
23	60	ST	[0..1]		Birth Place	Optional	Use may be specified locally.
24	1	ID	[0..1]	0136	Multiple Birth Indicator	Required, may be empty	The acceptable values are Y and N. If the status is undetermined, then field shall be empty.
25	2	NM	[0..1]		Birth Order	Conditional, May be empty	If Multiple Birth Indicator is populated with Y, then this field should contain the number indicating the person's birth order, with 1 for the first child born and 2 for the second.
26		CE	[0..1]	0171	Citizenship	Optional	
27		CE	[0..1]	0172	Veterans Military Status	Optional	
28		CE	[0..1]	0212	Nationality	Optional	
29		TS	[0..1]		Patient Death Date and Time	Required, may be empty	
30	1	ID	[0..1]	0136	Patient Death Indicator	Conditional, May be empty	If patient death date is populated, then this field should be populated.
31	1	ID	[0..1]	0136	Identity Unknown Indicator	Optional	
32	20	IS	[0..1]	0445	Identity Reliability Code	Optional	
33		TS	[0..1]		Last Update Date/Time	Optional	May be locally specified.
34		HD	[0..1]		Last Update Facility	Optional	Use is locally specified.
35		CE	[0..1]	0446	Species Code	Optional	

36		CE	[0..1]	0447	Breed Code	Optional	
37	80	ST	[0..1]		Strain	Optional	
38		CE	[0..1]	0429	Production Class Code	Optional	
39		CWE	[0..1]	0171	Tribal Citizenship	Optional	

PID field definitions

PID-1 Set ID - PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

PID-3 Patient Identifier List (CX) 00106

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.).

PID-5 Patient Name (XPN) 00108

Definition: This field contains the names of the patient. The primary or legal name of the patient is reported first. Therefore, the name type code in this field should be —L - Legal. Refer to HL7 Table 0200 - Name Type for valid values.

PID-6 Mother's Maiden Name (XPN) 00109

Definition: This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name.

PID-7 Date/Time of Birth (TS) 00110

Definition: This field contains the patient's date and time of birth.

PID-8 Administrative Sex (IS) 00111

Definition: This field contains the patient's sex. Refer to User-defined Table 0001 - Administrative Sex for NDIIS values.

PID-9 Patient Alias (XPN) 00112

Not anticipated for use in immunization messages.

PID-10 Race (CE) 00113

Definition: This field refers to the patient's race. Refer to User-defined Table 0005 - Race for NDIIS values. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

PID-11 Patient Address (XAD) 00114

Definition: This field contains the mailing address of the patient. Address type codes are defined by HL7 Table 0190 - Address Type. Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

PID-12 County Code (IS) 00115

Not anticipated for use in immunization messages. County code belongs in the Address field (PID-11).

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient's personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Each type of telecommunication shall be in its own repetition. For example, if a person has a phone number and an email address, they shall each have a repetition. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

PID-14 Phone Number - Business (XTN) 00117

Definition: This field contains the patient's business telephone numbers. All business numbers for the patient are sent in the following sequence. The first sequence is considered the patient's primary business phone number (for backward compatibility). If the primary business phone number is not sent, then a repeat delimiter must be sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

PID-15 Primary Language (CE) 00118

Definition: This field contains the patient's primary language. HL7 recommends using ISO table 639 as the NDIIS values in User-defined Table 0296 - Primary Language.

PID-22 Ethnic Group (CE) 00125

Definition: This field further defines the patient's ancestry. Refer to User-defined Table 0189 - Ethnic Group. The second triplet of the CE data type for ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

PID-24 Multiple Birth Indicator (ID) 00127

Definition: This field indicates whether the patient was part of a multiple birth. Refer to HL7 Table 0136 - Yes/No Indicator for valid values. Y the patient was part of a multiple birth N the patient was a single birth Empty field multiple birth status is undetermined.

PID-25 Birth Order (NM) 00128

Definition: When a patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field. If PID-24 is populated, then this field should be populated.

PID-29 Patient Death Date and Time (TS) 00740

Definition: This field contains the date and time at which the patient death occurred.

PID-30 Patient Death Indicator (ID) 00741

Definition: This field indicates whether the patient is deceased. Refer to HL7 Table 0136 - Yes/no Indicator for valid values.

Y - the patient is deceased

N - the patient is not deceased

Empty - status is undetermined

PID-33 Last Update Date/Time (TS) 01537

Definition: This field contains the last update date and time for the patient's/person's identifying and demographic data, as defined in the PID segment.

PID-34 Last Update Facility (HD) 01538

Definition: This field identifies the facility of the last update to a patient's/person's identifying and demographic data, as defined in the PID segment.

PV1—Patient Visit Segment

The PV1 segment is used to convey visit specific information. The primary use in immunization messages in previous releases was to carry information about the client's eligibility status. This is now recorded at the immunization event (dose administered) level. Use of this segment for the purpose of reporting client eligibility for a funding program at the visit level is not supported.

QAK—Query Acknowledgement Segment

SEQ	LEN	Data Type	Cardinality	Value set	ELEMENT NAME	Usage	Comment
1	32	ST	[1..1]		Query Tag	Required	
2	2	ID	[0..1]	0208	Query Response Status	Required, may be empty	
3		CE	[0..1]	0471	Message Query Name	Required	
4	10	NM	[0..1]		Hit Count	Optional	
5	10	NM	[0..1]		This payload	Optional	
6	10	NM	[0..1]		Hits remaining	Optional	

QAK field definitions

QAK-1 Query Tag (ST) 00696

Definition: This field contains the value sent in QPD-2 (query tag) by the initiating system, and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QAK-2 Query Response Status (ID) 00708

Definition: This field allows the responding system to return a precise response status. It is especially useful in the case where no data is found that matches the query parameters, but where there is also no error. It is defined with HL7 Table 0208 - Query Response Status.

QAK-3 Message Query Name (CE) 01375

Definition: This field contains the name of the query. This shall mirror the QPD-1 (Message Query Name) found in the query message that is being responded to.

QPD – Query Parameter Definition

The QPD segment defines the parameters of the query.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1		CE	[1..1]	0471	Message Query Name	Required	
2	32	ST			Query Tag	Required	Generated by the initiating system.
3-n		varies			User Parameters (in successive fields)	Required	The specification of this sequence is found in the profile specific to the use case.

QPD field definitions**QPD-1 Message Query Name (CE) 01375**

Definition: This field contains the name of the query. These names are assigned by the function-specific chapters of this specification. It is one to one with the conformance statement for this query name, and it is in fact an identifier for that conformance statement.

QPD-2 Query Tag (ST) 00696

Definition: This field must be valued by the initiating system to identify the query, and may be used to match response messages to the originating query.

The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK). This field differs from *MSA-2-Message control ID* in that its value remains constant for each message (i.e. all continuation messages) associated with the query, whereas *MSA-2-Message control ID* may vary with each continuation message, since it is associated with each individual message, not the query as a whole.

QPD-3-n User Parameters (Varies) 01435

NDIIS usage.

QPD-3: <Patient System ID>^^<System Name>^

QPD-4: <Last Name>^<First Name>^<Middle Initial>^

QPD-5: <Mother Last Name>^<Mother First Name>^^^^<Relationship to Patient>

QPD-6: <Patient Birth Date, CCYYMMMD format>

QPD-7 <Patient Gender>

QPD-8 <Patent Address>^<Patient City>^<Patient State>^<Patient Zip>^^^^

Definition: These successive parameter fields hold the values that the Client passes to the Server. The client data is presented as a sequence of HL7 fields. Beginning at *QPD-3-User parameters*, the remaining fields of the QPD segment carry user parameter data. Each QPD user parameter field corresponds to one parameter defined in the Conformance Statement, where each name, type, optionality, and repetition of each parameter has been specified. While these parameters are understood to be usually —and-ed|| together, the user must inspect the required Conformance Statement to properly understand each. Except in the QSC variant, the parameter names do not need to be stated in the query; they are understood to be positional based on the Conformance Statement. Each parameter field may be specified in the Conformance Statement to be of any single data type, including the complex QIP and QSC types. Parameter fields in the QPD segment appear in the same order as in the Conformance Statement.

RCP – Response Control Parameter Segment

The RCP segment is used to restrict the amount of data that should be returned in response to query. It lists the segments to be returned.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1	1	ID	[0..1]	0091	Query Priority	Required	Constrain to null or I. Immediate priority is expected.
2		CQ	[0..1]	0126	Quantity Limited Request	Required	This field may contain a maximum number of records that may be returned. The first component contains the count and the second component contains the RD records.
3		CE		0394	Response Modality	Optional	

4		TS			Execution and Delivery Time	Optional	
5	1	ID		0395	Modify Indicator	Optional	
6		SRT			Sort-by Field	Optional	
7		ID			Segment group inclusion	Optional	

RCP field definitions

RCP-1 Query Priority (ID) 00027

Definition: This field contains the time frame in which the response is expected. Refer to HL7 Table 0091 - Query priority for valid values. Table values and subsequent fields specify time frames for response. Only I for immediate shall be used for this field.

RCP-2 Quantity Limited Request (CQ) 00031

Definition: This field contains the maximum length of the response that can be accepted by the requesting system. Valid entries are numerical values (in the first component) given in the units specified in the second component. Default is LI (lines). The expected type is records, so the second component is constrained to RD.

RCP-3 Response Modality (CE) 01440

Definition: This field specifies the timing and grouping of the response message(s). Refer to HL7 Table 0394 – Response modality for valid values.

RCP-7 Segment Group Inclusion (ID) 01594

Definition: Specifies those optional segment groups which are to be included in the response. Refer to HL7 Table 0391—Segment group for values for Segment Group. This is a repeating field, to accommodate inclusion of multiple segment groups. The default for this field, not present, means that all relevant groups are included.

RXA-- Pharmacy/Treatment Administration Segment

The RXA segment carries pharmacy administration data. It is a child of an ORC segment, which is a repeating segment in the RSP and VXU messages. Because ORC are allowed to repeat an unlimited numbers of vaccinations may be included in a message. Each RXA must be preceded by an ORC.

SEQ	LEN	Data Type	Cardinality	Value Set	ELEMENT NAME	Usage	Comment
1	4	NM	[1..1]		Give Sub-ID Counter	Required	Constrain to 0 (zero)

2	4	NM	[1..1]		Administration Sub-ID Counter	Required	Constrain to 1
3		TS	[1..1]		Date/Time Start of Administration	Required	
4		TS	[0..1]		Date/Time End of Administration	Required, may be empty	If populated, this should be the same as Start time (RXA-3)
5		CE	[1..1]	0292	Administered Code	Required	CVX code is required for Meaningful Use.
6	20	NM	[1..1]		Administered Amount	Required	If administered amount is not recorded, use 999.
7		CE	[0..1]		Administered Units	Conditional, May be empty	If previous field is populated by any value except 999, it is required.
8		CE	[0..1]		Administered Dosage Form	Optional	
9		CE	[0..*]	NIP 0001	Administration Notes	Required	The primary use of this field it to convey if this immunization record is based on a historical record or was given by the provider recording the immunization. All systems should be able to support this use. Other uses of this field are permitted, but need to be specified locally.
10		XCN	[0..1]		Administering Provider	Required, may be empty	This is the person who gave the administration.
11		LA2	[0..1]		Administered-at Location	Required	
12	20	ST	[0..1]		Administered Per (Time Unit)	Optional	
13	20	NM	[0..1]		Administered Strength	Optional	
14		CE	[0..1]		Administered Strength Units	Optional	
15	20	ST	[0..*]		Substance Lot Number	Required	Not required for Historical records.

16		TS	[0..1]		Substance Expiration Date	Conditional, May be empty	If the lot number is not null this field should be valued.
17		CE	[0..*]	MVX	Substance Manufacturer Name	Required	Not required for Historical records.
18		CE	[0..*]	NIP002	Substance/Treatment Refusal Reason	Conditional	If the Completion status is RE then this shall be populated
19		CE	[0..1]		Indication	Optional	
20	2	ID	[0..1]	0322	Completion Status	Required, may be empty	If this field is not populated it is assumed to be CP or complete. If the Refusal reason is populated this field shall be set to RE.
21	2	ID	[0..1]	0323	Action Code-RXA	Required, may be empty	
22		TS	[0..1]		System Entry Date/Time	Optional	
23	5	NM	[0..1]		Administered Drug Strength Volume	Optional	
24		CWE	[0..1]		Administered Drug Strength Volume Units	Optional	
25		CWE	[0..1]		Administered Barcode Identifier	Optional	
26	1	ID	[0..1]	0480	Pharmacy Order Type	Optional	

RXA field definitions

RXA-1 Give Sub-ID Counter (NM) 00342

Definition: This field is used to match an RXA and RXG. Not a function under IIS. Constrain to 0 (zero).

RXA-2 Administration Sub-ID Counter (NM) 00344

Definition: This field is used to track multiple RXA under an ORC. Since each ORC has only one RXA in immunization messages, constrain to 1. This should not be used for indicating dose number, which belongs in an OBX.

RXA-3 Date/Time Start of Administration (TS) 00345

Definition: The date this vaccination occurred. In the case of refusal or deferral, this is the date that the refusal or deferral was recorded.

RXA-4 Date/Time End of Administration (If Applies) (TS) 00346

Definition: In the context of immunization, this is equivalent to the Start date/time. If populated it should be = RXA-3. If null, the date/time of *RXA-3-Date/Time Start of Administration* is assumed.

RXA-5 Administered Code (CE) 00347

Definition: This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in the first triplet to code this field (see HL7 Table 0292 - Codes for vaccines administered). The second set of three components could be used to represent the same vaccine using a different coding system, such as Current Procedural Terminology (CPT). CVX code is the strongly preferred code system.

RXA-6 Administered Amount (NM) 00348

Definition: This field records the amount of pharmaceutical administered. The units are expressed in the next field, RXA-7. Registries that do not collect the administered amount should record the value "999" in this field.

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units. This field is not required if the previous field is populated with 999.

RXA-9 Administration Notes (CE) 00351

Definition: This field is used to indicate whether this immunization record is based on a historical record or was given by the reporting provider. It should contain the information source (see *NIP-defined Table 0001 - Immunization Information Source*). The first component shall contain the code, the second the free text and the third shall contain the name of the code system. (NIP001) Sending systems should be able to send this information. Receiving systems should be able to accept this information.

RXA-10 Administering Provider (XCN) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical.

RXA-11 Administered-at Location (LA2) 00353

The NDIIS Provider ID is included in this field. Populate subcomponent 4 with the NDIIS Provider ID, e.g., ^^1022.

Definition: The name and address of the facility that administered the immunization. Note that the components used are: Component 4: The facility name/identifier.

Subcomponent 1: identifier21 Subcomponent 2: Universal ID This shall be an OID, if populated. Note that this should not be a local code, but rather a universal id code. Subcomponent 3: Universal ID type (specify which universal id type) Note that if subcomponent 1 is populated, 2 and 3 should be empty. If subcomponent 2 is populated with an OID, subcomponent 3 must be populated with ISO. Component 9-15: Facility address. Components not specifically mentioned here are not expected in immunization messages.

RXA-15 Substance Lot Number (ST) 01129

Definition: This field contains the lot number of the medical substance administered. It may remain empty if the dose is from a historical record.

RXA-16 Substance Expiration Date (TS) 01130

Definition: This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record.

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: This field contains the manufacturer of the medical substance administered. MVX codes should be used to code this field.

RXA-18 Substance/Treatment Refusal Reason (CE) 01136

Definition: This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance. If this field is populated RXA-20, Completion Status shall be populated with RE.

RXA-20 Completion Status (ID) 01223

This field indicates if the dose was successfully given. It must be populated with RE if RXA-18 is populated. If a dose was not completely administered or if the dose were not potent this field may be used to label the immunization.

RXA-21 Action Code – RXA (ID) 01224

This field indicates the action expected by the sending system. It can facilitate update or deletion of immunization records. If empty then Action Code A is assumed (Add).

RXA-22 System Entry Date/Time (TS) 01225

This field records the date/time that this record was created in the originating system. Local implementations should specify its use.

RXR-- Pharmacy/Treatment Route Segment

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed as they apply to a particular order.

SEQ	LEN	Data Type	Cardinality	TBL#	ELEMENT	NAME	Usage	Constraint
1		CE	[1..1]	0162	Route	Required		
2		CWE	[0..1]	0163	Administration Site	Required, may be empty		
3		CE		0164	Administration Device	Optional		
4		CWE		0165	Administration Method	Optional		
5		CE			Routing Instruction	Optional		

6		CWE		0495	Administration Site Modifier	Optional		
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RXR-1 Route (CE) 00309

Definition: This field is the route of administration.

Refer to User-Defined Table 0162 - Route Of Administration for valid values.

RXR-2 Administration Site (CWE) 00310

Definition: This field contains the site of the administration route.

RXR-3 Administration Device (CE) 00311

Not anticipated for IIS use.

RXR-4 Administration Method (CWE) 00312

Not anticipated for IIS use.

RXR-5 Routing Instruction (CE) 01315

Not anticipated for IIS use.

RXR-6 Administration Site Modifier (CWE) 01670

Not anticipated for IIS use.